

GOALS 1 and 5

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Introduction:

In concert with the *Memorandum for the Heads of Executive Departments and Agencies; Subject: Enhancing Learning and Education through Technology*, goals number 1 and 5 were analyzed by the team. To develop an implementation plan, the “whats” and the “hows” were integrated into an approach to the path forward. This approach is descriptive of the needs of the DOE community related to Technology Supported Learning:

Assumptions:

- I. This overview is intended to be descriptive of current and future requirements of the DOE TSL Program.
- I. IRM staff at the field office level will be involved in the TSL process (engineering, budget, design and implementation).
- I. All DOE offices (contractors/federal organizations) will submit information utilizing the Resource Assessment Tool. The information submitted will be accurate and complete.
- I. The outcome of the TSL Resource Assessment will be integrated into the 5-Year IRM Budget Plan.
- I. The results of the TSL Resource Assessment will provide exact and accurate data to project DOE needs and requirements for the TSL program.

Goal 1 - Identify equipment technology and other resource requirements and baselines for effective implementation of technology-supported learning (Presidential Memo - Point a.)

Process:

The Resource Assessment Tool (RAT) will be the mechanism for identifying equipment, technology, and other resources for DOE organizations and DOE contractors.

It was the consensus of the team that the data that has been submitted to date may not be accurate or complete in some cases. Therefore, a validation/verification process

should be instituted to ensure the accuracy of the data. This validation/verification process should be a collaborative effort with input from both the training and information resources organizations.

To ensure validation of data, top management must be involved in the validation/verification process. The team recommends a certification process that will require that the Director of Training and the Dir. Of Information Resource Management certify that the resource data being submitted is complete and accurate.

Resource Report - Once all of the data is collected, a comprehensive report should be written that outlines what technology, equipment, and resources are available throughout the DOE Complex (federal and contractor).

A statistical analysis of all collected resource data should be completed and included in the Resource Report. Core areas throughout the DOE Complex and shortcomings should be identified. Strategies and steps should be outlined to correct TSL program shortcomings relating to DOE TSL resources.

It was the consensus of the team that not all of the data being provided through the Resource Assessment Tool will be useful in developing and implementing a TSL program. A modified data base extrapolating the most important or relevant Resource Assessment Tool data required for a DOE-wide TSL program should be maintained. On-going maintenance of the database is necessary in order to provide up-to-date TSL resource information DOE-wide.

Barriers:

- I. Incomplete or inaccurate TSL resource data.
- II. Funding - may not be available for site licenses, upgrades, etc. DOE wide
- III. Not all DOE offices (contractors/federal) may agree to support the TSL program since funding is an issue.

Goal 5 - Develop standards for technology supported learning format, structure and process that will promote uniformity, reduce duplication and improve usefulness. (Presidential memo - point c).

Process:

Generic Core Development - Course development will be designed to accommodate DOE-wide applicability. Site -specific content can be provided in additional formats (handouts, CDT, video, lecture). This will allow the sharing of training materials throughout the DOE community and potentially with other agencies and partners.

Common look and feel - Course development (primarily in computer-based training and web-based training) will have a common method of navigation to ensure continuity and ease of use for end user. Design of product will be transparent to the end user.

Adaptability - Courseware must be developed with adaptability. Adaptability is the ease of changing information forms (e.g. data, and text, graphics, imaging and animation, sound, voice, multimedia, and video) or functional characteristics (e.g. preparation, presentation, collection, display, transmission, storage and processing).

Portability- Courseware will be developed with the ability to move applications across the entire business system and application architecture and change architecture capabilities transparently from one location to another.

Transparency – Courseware will be developed with transparency. This includes the ability for local and remote capabilities to be accessed using identical or similar access operations. In seamless architecture, applied technology provides transparent interoperability of all components to all users.

Security - Courseware will be developed with preplanned, appropriate, integrated protection for data, information, and technology capabilities. Courseware design for CDT and W.T. must take into consideration existing firewalls and other computer security issues.

Structure

Courseware will be designed using Instructional Systems Design (ISD) or Systematic Approach to Training (SAT).

A formal needs assessment process will be conducted to evaluate the courses needed by the end users.

Training needs assessment at the field office level will be integrated into a consolidated DOE-wide needs assessment to determine the development of TSL courses.

Training programs will be shared with other agencies and DOE will cooperatively develop additional courses on material that is ubiquitous throughout government.

Training programs/areas that are cross-cutting DOE-wide will be defined and developed (e. g. CERCLA/RCRA training, OSHA training, Ethics, diversity, etc.) DOE will work with the lead program office or lead agency (e.g. OSHA) to develop training based on regulatory requirements.

DOE will develop methods for efficiently, cost effectively, and cooperatively developing training with universities, private industry and recognized leaders in specific content areas. (CRADAs, MOUs, MOAs).

The use of COTS and commercially developed products will be maximized to expand training opportunities.

DOE will negotiate government-wide licensing of commercially produced programming and courseware.

A centralized clearinghouse for TSL development (possibly building on the DOD Defense Training Information System model) will be established.

Annual TSL reviews of contractor and DOE training projects will be conducted. Review will include existing and proposed courses (e.g. CBT,WBT) to avoid duplication of efforts.

Internet links will provide access to other organizations/agencies course catalogs and initiatives (CTED, ATTSIG, GATE, Federal Training Mall).

Develop lessons learned guide for implementation of TSL and course conversion

Develop guidelines for course conversion to the various TSL media based on Instructional Systems Design concepts.

Barriers

Funding

Equipment

Maintaining technological currency

Access

Skills

“Not invented here”

Firewalls

Lack of involvement of IR at Field Operations management level

GOALS 3, 4, 6 and 7

Team 3 Report

Overview: As a team we concluded that all the goals we selected were related to traditional ISD/SAT processes: analysis, design, development, implement, and evaluate. Goal 4 is related up-front analysis. Goal 3 is tied especially to design. Goal 6 relates to all the processes but especially evaluation. Goal 7 is like another, often overlooked, dimension of the ISD/SAT model--keeping everything current. The relationship between these goals and how they impact the ISD/SAT model is shown in the hand drawn sketch provided as Attachment 1 (faxed separately). We suggest that Don Denier be commissioned to re-develop this using powerpoint.

	Area	
3	Defined (plus brainstorming items)	<p>Identify instructional strategies and methods that will improve the quality and effectiveness of TSL learning activities.</p> <ul style="list-style-type: none"> a. Match instructional strategies with technologies with consideration to human factor issues, computer literacy, and reading ability. b. Develop course evaluation program tailored to account for new technologies, instructional methods and the most effective training delivery method to best meet employee needs. c. Keep training delivery system current by recognizing the evolving nature of technology. d. Develop a media selection tool to support TSL
	Background	<p>As part of the normal design portion of the ISD/SAT models, developers should seek strategies that optimize learning. Instructional strategies include the use of components such as definitions, explanations, examples, practice and feedback components. How these components are sequenced is instructional strategy. TSL can support a wide variety of instructional strategies, some delivery methods being more capable of some strategies more than others. If the presentations require extensive visual or hands-on, special forms of TSL may be required such as VR, animations, computer simulations, and intelligent mock-ups. On the other hand, if interpersonal and team-based skills are required, online communications via video-conferencing may be appropriate.</p> <p>Ensuring that the developers apply TSL appropriately for the desired instructional strategies is the essence of this goal..</p> <p>Both media selection and cost/benefit trade-offs are considered as part of the solutions being proposed.</p>
	Assumptions	Analysis phase is basically completed, TSL has been found to be generally appropriate, some design has already occurred.

	Decision process	<p>Both effectiveness and cost need to be considered.</p> <p>Two approaches for effectiveness of media for given instructional strategies may be most appropriate:</p> <ol style="list-style-type: none"> A formal media selection model to help developers less experienced with TSL make sound media selection decisions at the learning activity/objectives level may be needed. It may also be useful to obtain a DOE-wide license of a front-end ISD package such as Designer's Edge. This could effectively assist inexperienced developers select good strategies and tied to a good media selection model, will assist in the media decisions that must be made. For seasoned TSL developers, an on-line knowledge-base including DOE case studies and lessons learned, with pointers to external DOE case studies, principles and heuristics, etc., may be more appropriate. This knowledge base could be developed and maintained by the SIGATT of TRADE. Web pages could allow the developers to ask each other questions (like an asynchronous chat room). <p>The first media selection approach can be viewed as a sort of "Wizard" as used by Excel to create graphs, powerpoint to create blank presentations, word to create calendars, etc. The second is more like a rich online help system. See attachment 2.</p> <p>In addition to effectiveness-oriented media selection, a cost trade-off tool can be built and put on line. This could use default baseline information that could be made site-specific for more accurate estimating and alternative assessment and evaluation. This could be a simplified version of some of the spreadsheets used in the business case.</p>
	Implementation plan/process	<ol style="list-style-type: none"> Collaborate with the Air Force in obtaining a DOE site license to Advisor 3?. (Depending on their findings and the match between this tool and DOE's needs. If it is not found to be adequate, create/obtain an appropriate tool). Make it available on the net. Include online support. Commission the SIGATT (or other group of TSL experts) to design and build an Internet-based Performance Support System (IPSS) as discussed in B above. Could start very simply as online computer conferencing. Create an economic analysis online worksheet and database (drawing on DOE specific cost-savings and industry defaults where needed). This would support the cost/benefit analysis of selected feasible media alternatives. At next TSL meeting roll-out products.
	Presidential memo ties	<p>This goal is very closely tied to the intent of providing "best training at lowest cost using technology". The best instructional strategies should result in best training. When used appropriately, TSL should lead to lower costs.</p> <p>Also, this approach enables the Department to "develop a model technical approach to facilitate electronic instruction..." We would need to study the results of the Advanced Distributed Learning Initiative Partnership and hopefully contribute to that partnership in productive ways.</p>
	Barriers	<p>By going with a novice and expert tool set approach, much of the resistance that experts would have with forcing use of a tool should be eliminated. DOE-wide licensing would help standardize front-end and media decisions.</p> <p>Simplifying the business case spreadsheets would significantly help reduce user frustration with the economic analysis portion. The draft cost savings team cost selection sheet would be another alternative.</p> <p>Concern that formalized ISD processes are too complex. Adding this will add cost to already expensive front-end process.</p>
4	Defined (plus brainstorming items)	<p>Identify learning activities that have cross-cutting applicability that would make them candidates for implementation via TSL approaches.</p> <ol style="list-style-type: none"> Mandatory training. TSL training delivery method, drivers. Master TSL lists (matrix-identify sources). Competency development, corporate development, transportable

Background	<p>As discussed nearly two years by the business case development team, there are several types of cross-cutting learning activities.</p> <ol style="list-style-type: none"> Training required of most (if not all) contractor and Federal employees. Job-specific training for jobs found at more than one location Site-specific content that is actually common across sites with common missions <p>The approach described below is a systematic, rational, top-down approach versus a more market driven one. It may complement rather than compete with a more bottom-up market driven process.</p>
Assumptions	<p>ISD/SAT processes are being employed when new courses are being proposed or existing courses are being revised. We also assume that there are two levels at which this task is performed: local and globally. Local sites will want to perform an Appropriateness Screening when considering moving courses to TSL to save money as has been done at several sites. Globally, entities such as Centers of Excellence, program offices, or HR31 use these processes to reduce duplication, also covered by Goal 10.</p>
Decision process	<p>The following is an amplification for TSL of some of the standard analysis activities:</p> <ol style="list-style-type: none"> As part of the audience analysis, look at past and projected course attendance data: <ol style="list-style-type: none"> For potential new development, COEs or HQ offices may query locations for their projections. This is part of the Resource Assessment Tool already, but may be expanded somewhat as an interactive part of CTED or UNICAT. For conversion of existing training, similar querying of existing data provided by the Resource Assessment or its extension would be useful. In the short run, it may be sufficient to ask each site to provide lists of their top 15 or 20 courses (in terms of hours, or audience size). Or the sites could simplify the process by requesting a dump of all their attendance data and let the requestor rank and filter it. You would not need 100% return rate to make decisions. <p>Note: Many of the Federal and Contractor organizations keep track of the number of students attending each course on an annual basis. As was done at Oak Ridge, you can create a short list of about 15 courses with the highest attendance,(required, refresher, safety, HAZCOMM RCRA, etc.). These lists could be combined and assigned to Centers of Excellence, program offices (e.g. ES&H).</p> <ol style="list-style-type: none"> The appropriateness of TSL should be determined. We believe that a heuristic approach may be very useful here. We listed approximately 20 considerations that have implications for TSL appropriateness. These act as a “fuzzy” logic filter and can be looked at very quickly and easily to rule out bad matches. Identify existing available courses that meet requirements. CTED could be used to both communicate and as a central distribution point for resources, e.g., all or most CD-ROMs. Evaluate courses--what % need to be site specific? How can you handle the generic and site-specific without being redundant? (Good example of Oak Ridge--replaced 300 courses with 86 consensus courses).
Implementation plan/process	<ol style="list-style-type: none"> Reemphasize the Resource Assessment tool, if appropriate, to collect more attendance/volume information. (Doing this less formally through faxed lists can work). Provide a simple online heuristic decision-making aid. The group felt that this should not be algorithmic--should provide help in asking questions but not generate answers. The media selection tool discussed in #3 above is algorithmic and is more appropriately used during the design phase.
Presidential memo ties	<p>The careful consideration of existing TSL materials supports the presidential memo relative to making full use of best commercial practices when purchasing instructional software.</p>

	Barriers	<p>Action must result from analysis. If sites provide the resource assessment and other data they expect to see results.</p> <p>Economic tools for analysis must be very easy to use.</p> <p>It must be easy to obtain and reuse existing TSL materials.</p> <p>We need easy methods of communicating what portions of existing courses are generic and which are site-specific.</p>
6	Defined (plus brainstorming items)	<p>Identify evaluation criteria and parameters to measure the instructional effectiveness and cost savings associated with TSL as an alternative to conventional learning activity delivery</p> <p>a. Defining and measuring quality, customer satisfaction, performance measurements: what, how. Corporate “look and feel.”</p> <p>b. Measuring and recording cost savings</p> <p>c. Training course improvement/maintenance process.</p>
	Background	<p>As discussed relative to goals 3 and 4, TSL methods are not always the most cost-effective ones. To shore up claims and learn from experience, cost, benefit, and savings data must be very carefully collected and analyzed. This process is currently included in normal ISD/SAT approaches. The points below re-emphasize and customize these general processes to make them more TSL-specific.</p>
	Assumptions	<p>The evaluation phase of the ISD/SAT model is actually central to the model, receiving inputs and sending outputs to the analysis, design, development, and implementation phases. Evaluation involves collection and comparison of two types of data: 1) expected performance, quality and costs and 2) actual performance, quality and costs. The expected performance may be explicitly stated in terms of customer satisfaction, learning mastery, learning time to completion, retention, on the job performance, or even desired Return on Investment to the organization. Conformance to quality standards can involve basics such as user interface and navigation standards, spelling, reading level, etc. as well as more strategy oriented concerns such as the presence of certain learning (presentation, practice and testing) components and their adequacy for given objectives. Evaluation can also look at the expected costs for a given training program and measure the actual costs relating to development and implementation. While TSL development costs are typically much higher than standard classroom development costs, implementation costs are often much lower, especially when averaged over large populations. Much of the savings comes in reduced time to mastery. Formerly, when there was travel money to be saved, reduced travel was a consideration. Now, less easily quantifiable measured such as increased availability of courses (e.g. at workplace, just in time) and increased convenience to the learner are important factors.</p> <p>This goal is 100% consistent with ISD/SAT in that it looks at establishing the expected evaluation criteria/parameters for performance, quality and cost and the establishment of systems to gather the actuals in these three areas and compare the expected with the actuals. Ideally, a tight feedback system is then created to enable continuous improvement .</p>

	Decision process	<p>Analysis. Where available for existing non-TSL courses, baseline data including end-of-course performance data, customer satisfaction, quality measures, and implementation costs are gathered. New performance goals can be set as appropriate. Cost of analysis data is collected for this new or converted course.</p> <p>Design. As specific TSL delivery methods are selected (as appropriate) goals for total development and implementation costs for a converted TSL-delivered course can be established. Cost of design data is collected for the new or converted course.</p> <p>Development. Cost of development data is collected. Conformance to quality standards should be assessed as various components are completed.</p> <p>Implementation. Systems should be in place to collect customer satisfaction data, learning mastery (performance), and as desired other more advanced performance measures such as retention, on the job performance and ROI. Systems are also put in place to collect actual costs of delivery. For TSL, some of these costs are one-time and can be spread across several courses (cost of acquiring computers to run CBTs in a learning center, cost of acquiring classroom-based IVT capability). Other costs are tied directly to the delivery of each course (proctor time and instructor time, satellite and/or phone line time, facility costs, etc.).</p>
	Implementation plan/process	<ol style="list-style-type: none"> 1. The systems described for goals 3 and 4 related to media selection and economic analysis assist in setting the quality standards and expected economic costs and benefit expectations as needed in the analysis and design phases. 2. An approach for collecting various kinds of cost, benefit/savings data needs to be established. The creation of an online form for collecting the data and allowing it to be summarized and compared with that submitted by other sites is recommended. A draft form that could be converted to online use has been created and should be revised and implemented.
	Presidential memo ties	
	Barriers	<p>How do you get buy in from management and employees to gather and account for TSL-related costs and benefits?</p> <ol style="list-style-type: none"> a. Could a program similar to the Hammer award be initiated by HQ or the TSL Program to recognize those making the effort to accurately gather and use this type of data? b. Regarding development and implementation costs, wherever possible record the hours required. This provides a common factor that allows direct comparison from location to location and course to course. A separate rate schedule could be created to multiply the hours to get actual costs but the rates tend to vary considerably along with the types of burden included in the rates. As needed, actual savings could be calculated by merging/multiplying the tables appropriately. c. Tie award fee incentive based on the amount of savings. d. Encourage internal and external bench marking. Perhaps it would be possible to create a "TSL Leader's Club" consisting of those willing to share amongst themselves the data discussed in a. And b. above. It would be important to look at the various input parameters before generalizing this data (e.g. look at complexity of the CBT or amount of interaction/visualization required.) e. Set up default costs and perhaps hours that can be used for quick calculation of potential costs/savings. Perhaps the "Baney" numbers could be the starting point. Use actual data wherever possible.
7	Defined	Conduct pilots to validate system readiness, demonstrate the effectiveness of technology in improving learner outcomes, and evaluate cost vs. performance.

Background	<p>The capabilities of locations within DOE to implement TSL varies considerably. Several locations are becoming extremely adept at a number of technologies while others are just beginning with one or two. Sharing expertise and lessons learned within the DOE is extremely important. The TRADE SIGATT is one vehicle presently to share lessons learned and get pointers. Other more formal mechanisms for bootstrapping are needed. Additionally, setting up efficient processes for exploring the potential of new technologies as they emerge from laboratories and as they are being promoted by vendors is vitally important. The scope of this sharing should include DOE as well as our fellow government agencies as well as partners in industry and academia.</p> <p>Both hardware and software technologies as well as learning-theory based strategies which may be somewhat neutral to technology should be the subject of R&D. An example of the later is problem-based learning which can be implemented with a very wide variety delivery technologies but has been should be have excellent motivating, learning performance, and retention effects on learners.</p>
Assumptions	<p>Many implementations of ISD/SAT are somewhat blind to looking for and evaluating new alternatives. This "sword sharpening" activity is vital to maintaining currency. Otherwise, ISD reinforces the past but precludes use of exciting new discoveries in learning and delivery technologies. What is cost-effective one year may slip into being relatively inefficient only two or three years later. A good example of that is IVD technology that was the best there was in the early 90s but is now all but extinct. Its successor (CD-ROM) is already starting to fade in light of WBT potential.</p>
Decision process	<ol style="list-style-type: none"> 1. Continue asserting ourselves as part of the Government Alliance for Training and Education, GATE and other TSL-oriented government organizations. Become players with the agencies specifically charged by the President to carry out TSL planning and R&D. Expand this dialog to all partners. Contribute to bench marking and test-beds. 2. Ear-mark a pot of money for exploring new technologies. Coordinate closely with partners to ensure money is well-spent. Make sure the results of these explorations meet vital needs within DOE and are shared with partners.
Implementation plan/process	<ol style="list-style-type: none"> 1. Organize R&D component within the TSL Program. Empower appropriate organizations to coordinate with partners, report findings and lessons learned, and organize and run DOE-specific tests. 2. Regularly share internally discovered as well as partner-generated knowledge. CTED could be used. Other natural forums could be used such as TRADE, regular TSL meetings, and even TSL-delivered methods such as ITV, CD-ROM, WBT, etc.
Presidential memo ties	<p>The Presidential memo recognizes the importance of an R&D activity that is looking at new technologies to find where they can be best used. A unified application test-bed and shared R&D approach will save resources and shorten time-to-implement for new technologies that are found to be cost-effective. The results of such R&D should be view as advisory and a resource, as exceptional circumstances may over-ride generalities.</p> <p>...shall investigate how to make full use of emerging technologies to improve the cost-effectiveness and the quality of Federal training programs.</p> <p>1 (d). Develop and support a program of research that will accelerate the development and adoption of new instructional technologies.</p>
Barriers	<p>Needs, configuration, resources and constraints of one agency or Department will vary considerably from agency to agency, restricting the applicability of results obtained from a common test-bed.</p>

Attachment 2

Brainstormed List of Potential Considerations with Evaluating the Appropriateness of TSL (Items in list need to be elaborated but not converted to an algorithm)

Consider...

1. Size of the target audience.
2. Course will be needed repeatedly (not just once)
3. Whether it currently exists and in what format.
4. Geographic dispersion of potential audience.
5. Uniformity or lack thereof of target audience.
6. Amount of site-specificity of content.
7. Amount of hands-on required.
8. Whether course will be taken by workers on shifts (other than normal hours).
9. Current existing infrastructure and capabilities.
10. Red tape currently in place.
11. Stability of course content.
12. Whether course is initial or refresher.
13. Amount of soft-skills, interpersonal communication skills and open-ended group-based learning desired.
14. Amount and quality of video required.
15. Development abilities of current staff.
16. Existence of course in TSL format elsewhere.
17. Bloom taxonomy level of course objectives.
18. Learning style and audience's comfort level with technology.
19. Manager acceptance and readiness for use of TSL.

20. Negative history at location with TSL.

21. Convenience, timing and availability requirements (JIT).

GOALS 2, 10 and 11

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Goal 2:

Strategies:

- Market the benefits
- Make TSL widely available and easy to use
- Show cost reductions
- Maximize existing hardware and software

Barriers:

- Resistance to new technology
- Difficulty of sharing costs between programs

How to:

- Develop and implement marketing plan
- Work with Information Management (IM) infrastructure to develop easily searchable database
- Publicize accurate and objective cost saving \s of TSL
- Establish minimum standards for hardware and software

Goal 10:

Strategies:

- Use Internet-based technology to widely publicize available training and education courses
- Get user feedback to identify high quality courses
- Market course information on periodic basis to ensure course quality
- Rely on TSL system to eliminate redundancies (market-driven)

Barriers:

- If physical network is not easy to use, redundancies will not be eliminated
- Security issues
- Validation issues

Incapability of systems interface

How to:

Have consistent standards for accessing training courses

Have on-line, user-searchable course evaluation tracking mechanism

Rely on TSL benefits to change culture/mind set/environment

Travel

Cost (overall)

Classroom charges

Instructor cost

Manpower

Goal 11:

Strategies:

Develop partnership agreements with organizations to allow for optimal training to match DOE needs

Publicize available courses, locations, dates, etc.

Emphasize the use of annual training plans to identify needs

Work with partners to fulfill unmet needs

Continue marketing

Barriers:

Communication

"Not Invented Here" syndrome

Needs not well identified

How to:

Define partnership agreements to optimize course content placed on the TSL system to match content to our needs

Design course search engine to be very user-friendly and easy to use to find needed courses, locations within available budgets

Analyze available data on course utilization and user feedback and leverage this data to optimize the TSL systems

Publish user feedback

Publish the highest volume courses

Publish new offerings

Showcase DOE programs that make effective use of existing requirements to identify their training needs and develop plans to meet those needs

Maintain, update and develop new partnerships to optimize available courses, content, cost, and location

GOALS 8 and 9

Team Members: Susan Alexander, Tom Welch, Jamie Padilla, Joni Boone

The following assumptions are made to support Goals 8 & 9:

Assumption #1:

In order to achieve successful implementation of TSL, a sufficient change in attitude and approaches to instructional design and delivery must occur within the training community.

Assumption #2:

TSL partnerships and cooperative relationships are of interest and value to organizations outside of DOE.

Assumption #3:

There is existing capability to apply TSL within the DOE and a desire to use technology.

Strategy #1: Formulate and utilize partnerships within the DOE itself, to include federal, contractor, and subcontractor's capabilities, facilities, etc. in support of TSL.

Tactics in support of Strategy 1:

1. Establish DOE corporate directives for TSL sharing of products, personnel, facilities, etc.
2. Utilize the Resource Assessment tool information to identify capabilities, facilities, etc.
3. Establish link on CTED to identify Points of Contact (POC) for TSL information by field/site/program office locations.
4. By end of FY 99, 20 formal partnerships will have been realized within the agency resulting in \$2.5 million worth of cost savings, through elimination of unnecessary duplication and reduced development costs, and integration of facilities and capabilities.

Barriers to successful implementation of Strategy 1:

There are no incentives (rewards) under the current DOE contracts which encourage the sharing of programs and facilities. Current financial practices hinder sharing because of charge back practices, departmental funding, and stove piping of programs.

The current DOE culture requires that any action be supported by a DOE order or directive for action to occur; therefore, TSL innovations may be limited if no directives are issued.

The current culture which says that no program, course, etc. is applicable across the DOE without significant changes to content, delivery mechanisms, and format inhibits the ability to share information and programs. ("Not Invented Here" syndrome).

The current DOE strategy to move Managing and Integrating (M&I) contracting structures creates multiple sub-contractors and potentially duplicate training organizations making sharing and partnering even more difficult and challenging.

Strategy #2: In order to accelerate the TSL program, we need to identify organizations within the government, private industry, and education who are LEADERS in TSL.

Tactics in support of Strategy #2:

1. Contact organizations/associations that have created standards for successful implementation of Technology-Supported Learning (Masie Group, US Distance Learning Association, etc.).
2. Assess DOE levels of performance against the standards in item 1.
3. Using such criteria as the current national Baldrige recipients, attempt to identify leading companies, agencies, etc. in TSL implementation, who might be interested in establishing partnerships and cooperative relationships.
4. Create an information resource on lessons learned from those who have implemented TSL.
5. By 10/98, complete the data collection and information assessment on leading companies in TSL.
6. By 4/99, official Contact will have been made and formal discussions undertaken with the three leading TSL implementation organizations to forge partnerships with the DOE in order to close the gap between where DOE is and where it wants to be.
7. Use already developed and identified information from TRADE on how to partner with private enterprises and other federal agencies (Tine McKinley).
8. Use information from the Partnering team already generated from previous meetings about advertising and marketing. (Sharon Wright).

Barriers to successful implementation of Strategy #2:

The bench marking activity will require up-front commitment of time and people resources. Failure to see this as important will inhibit the successful data gathering necessary to identify valuable partners.

Who will perform the activity?

How will it be funded?

Recognize the necessity to move the process at a sufficient pace to keep up with rapidly changing technologies.

Congressional mandates make working with the private sector prohibitive.

Current financial practices (i.e. overhead charges) for doing business with private industry, etc. results in restrictions, roadblocks, and a undesirable environment for partnering.

Strategy #3: Nurture, and where appropriate, enhance community colleges, universities and K-12 capabilities.

1. DOE and NEC and DOL work the process at the national level along with other federal agencies.
2. Investigate resources such as Western Governor's University and other on-line universities for suggestions.

We don't have answers for how to implement this strategy.